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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,863	09/28/2001	Kazuo Tanaka	KOKUSAI 076	2372

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EXAMINER

LOUIE, WAI SING

ART UNIT PAPER NUMBER

2814

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,863

Applicant(s)

TANAKA ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-5 and 7, drawn to a method of controlling a heating apparatus, classified in class 438, subclass 464.
- II. Claim 6, drawn to an apparatus, classified in class 118, subclass 666.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, instead of controlling heating of a semiconductor material, it would be possible to control baking the solid powder coating onto an automobile in a heat treatment chamber.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Sean McGinn on 4/1/03 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-5 and 7. Affirmation of this election must be made by applicant in replying to this Office action. Claim 6 withdrawn

from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Ide (US 5,603,772).

With regard to claims 1 and 7, Ide discloses a method of controlling the heater elements of a wafer-heating furnace having a multiple heating zone and PID temperature detectors/controllers (col. 3, line 66 to col. 6, line 48 and fig. 5) comprising:

- Detecting temperature 210 at the predetermined location (col. 4, lines 14-20) the number of which is larger than the number of the heating zones 220 and at least one of which is in each of the heating zones 220 (col. 4, lines 5-67 and fig. 4);

- Controlling the heating apparatus 22a and 22b in such a manner that the target temperature falls between a maximum value and a minimum value of a plurality of temperatures detected at a plurality of detected predetermined locations (col. 3, lines 2-10 and fig. 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ide (US 5,603,772).

With regard to claims 2-3 and in according to claim 1 above, Ide discloses:

- The first temperature detectors 210 to 21n are disposed at the first predetermined locations corresponding to the respective zones (the outer zones of the furnace in fig. 5), and are used for a temperature control method of controlling the heating apparatus 22a to 22n in such a manner that temperature detected by the first temperature detectors 210 to 21n equal to a first target temperature;
- The second temperature detectors 211 are disposed at second predetermined locations which are closer to a treatment target than the first predetermined

locations (the center of the furnace), but Ide does not disclose the second temperature detectors 211 obtain an interference matrix M as well as differences P between second target temperature for the second detectors and temperatures detected by the second temperature detectors. However, Ide disclose a matrix of temperature detectors group 210, 211, to 21n and each group includes 21a and 21b (col. 4, lines 14-33 and fig. 4). Ide also discloses a plurality of controller groups 230 to 23n (col. 4, lines 56-62). Therefore, one with ordinary skill in the art could tabulate the differences P in any fashions and any variations:

- It is inherent that the inner temperature detectors 211 detect a difference in temperature than the outer temperature detectors 210 to 21n and the corresponding PID's would adjust the target temperature of heating apparatus 220 to 22n. Thus, the temperature in the process chamber is controlled uniformly (col. 5, lines 17-40).

With regard to claims 4 and 5, Ide discloses a temperature control method for controlling an apparatus which includes a process chamber 20, a heating apparatus 220 to 22n at least one heating zone for heating a treatment target provided in the process chamber 20 (col. 2, line 60 to col. 3, line 10 and fig. 4), and first temperature detectors 210 provided at least one for each zone for detecting heating temperatures provided by the heating apparatus 220 at first predetermined locations (fig. 5).

- The heating apparatus 22a is controlled on the basis of the first detected temperatures detected by the first temperature detectors 210 and a first target temperature for the first detected temperatures;

- A plurality of second temperature detectors 211 including 21a and 21b are disposed at second predetermined locations the number of which is larger than that of the heating zones and which are closer to the treatment target than the first predetermined locations, the second temperature detectors 211 being operable to detect heating temperatures provided by the heating apparatus. The method comprising:
 - Comparing second detected temperatures detected by the second temperature detectors 211 with a second target temperature for the second detected temperatures to obtain corrective values for the target temperature (see reasoning in claim 2 above and fig. 4);
 - Correcting the first target temperature by the corrective values to perform temperature control (see reasoning in claim 2 above and fig. 4).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (703) 305-0474. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Application/Control Number: 09/964,863

Page 7

Art Unit: 2814

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

wsl

April 1, 2003


LONG PHAM
PRIMARY EXAMINER